



ACE4570P

I²C-Control Single Cell Li-Ion Battery Linear Charger with Power Path Management

Description

ACE4570P is a complete constant-current & constant voltage linear charger for single cell lithium-ion batteries with power path management and I²C program function. ACE4570P is specifically designed to work within USB power delivery specification and direct interface. ACE4570P integrates an internal Mid voltage block to prevent accidental high voltage spike from USB port such as line-inrush voltage and mistaken high voltages from QC/PD adaptors. Meanwhile, the chip provides system short circuit protection by limiting the current from input to system and battery to system. These features are effective to protect the battery or chip from damaging. The parameters of input current limitation, the discharge current limitation and safety timer can be programmed by I²C interface. Additionally, input over voltage protection, input under voltage lockout are integrated for good input source detection. ACE4570P is highly integrated, it can simplify system design and reduce the number of components outside. The device is packaged in advanced Full-Green compliant CSP package.

Features

- 28V Maximum Rating for VIN Power
- 5 μ A standby/10nA ship mode BAT pin current
- Internal 6.0V Input Over Voltage Protection
- Charge Voltage Regulation Accuracy: $\pm 0.5\%$
- Programmable Charge Parameters Through I²C
- Wide Range of Fast Charge Current: 8mA to 512mA
- Auto Power Path Management for Powering the System and Charging the Battery
- Integrated Power MOSFETs for System Load and Charging Mode
- Strong and Robust Protection: VIN OVP, Battery OVP, OCP, Reverse Leakage Protection, Short Protection, Thermal Protection
- Thermal Limiting Regulation On-Chip
- Outside OTP Sensing by NTC pin
- Battery Disconnection Function
- Support Shipping Mode, Wake Up and System Reset Function
- Available in a CSP-9 Package

Applications

- Smart Watches
- Wearable Devices.
- IoT Gadgets



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Absolute Maximum Ratings

Symbol	Items	Value	Unit
IN	Input Supply Voltage	-0.3~28	V
All Other Pins	Pin Voltage	-0.3~6	V
I _{BAT}	Maximum Continues Current of BAT Pin	1	A
I _{SYS}	Maximum Continues Current of SYS Pin	1.5	A
I _{BAT_SYS}	Maximum Continues Current of BAT to SYS	3.2	A
P _{D_MAX}	Power Dissipation	1.5	W
R _{θJA}	Thermal Resistance	85	°C/W
T _J	Junction Temperature	-40 to 150	°C
T _{STG}	Storage Temperature	-60 to 150	°C
T _{SOLDER}	Package Lead Soldering Temperature	260°C, 10s	
HBM	Human Body Model ESD level	6	KV
CDM	Charged Device Model ESD level	TBD	KV

Note: Exceed the absolute maximum rating maybe damage the device. Exposure to absolute maximum rating conditions may affect device reliability.

Recommended Operating Condition

Symbol	Items	Min	Nom	Max	Unit
IN	Input Operating Voltage Range	4	5	24	V
I _{BAT}	Battery Charge Current Range			512	mA
I _{SYS}	System Current Range			800	mA
I _{BAT_SYS}	Battery to System Current Range			3.2	A
T _J	Junction Temperature	0		125	°C

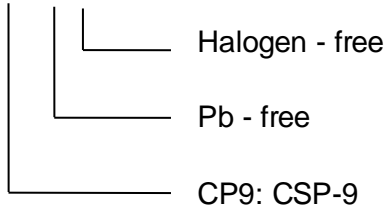


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Ordering Information

ACE4570P XXX + H





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Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Technology Co., LTD.

As sued herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

ACE Technology Co., LTD.
<http://www.ace-ele.com/>